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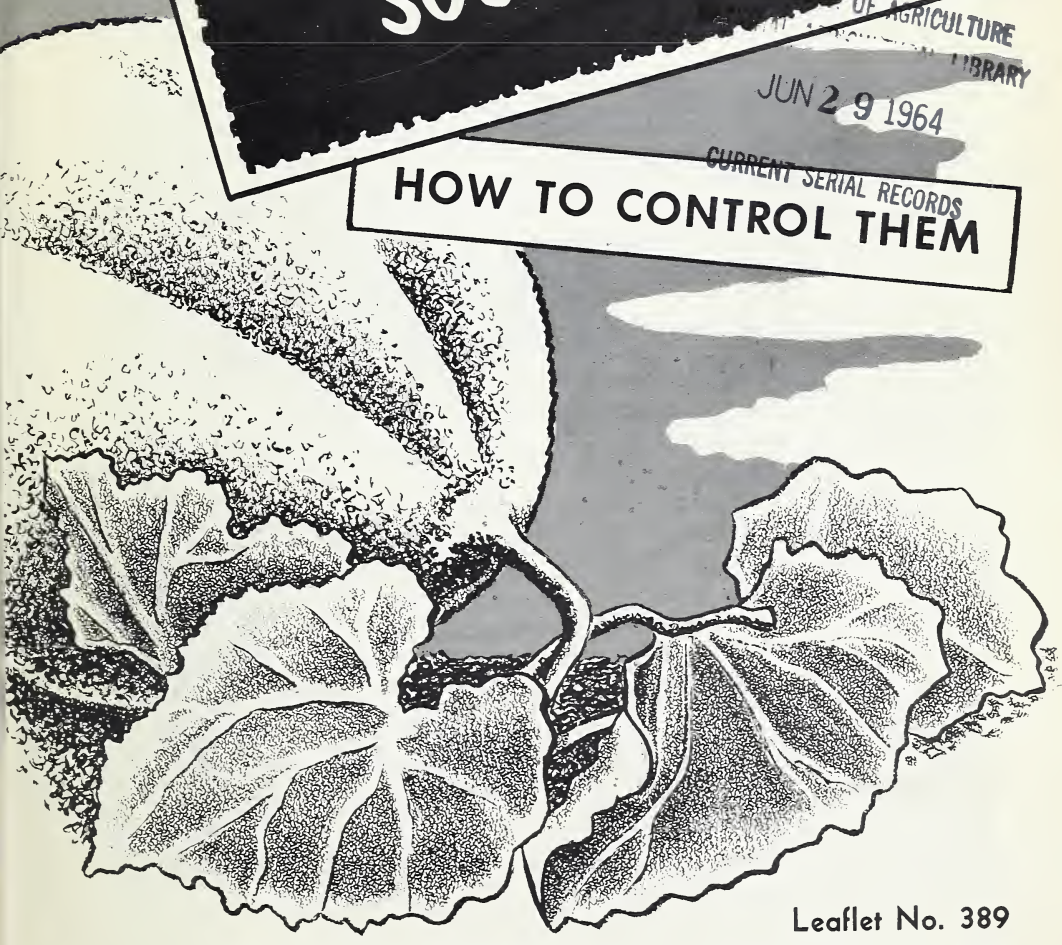
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CANTALOUPE INSECTS in the SOUTHWEST

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HOW TO CONTROL THEM



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CANTALOUPE INSECTS in the SOUTHWEST



• HOW TO CONTROL THEM

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Cantaloups in the Southwest may be attacked by one or more of the following insects: The beet leafhopper, leaf miners, the southern garden leafhopper, the western potato leafhopper, thrips, the melon aphid, and cucumber beetles. They are also attacked by spider mites (red spiders).

These pests damage foliage, causing leaf curling, loss of color, and exposure of melons to the sun. They lower quality and yield. They stunt the growth of plants and sometimes kill them.

You can control the insects by applying insecticides—but do so only when you are sure that they cannot be controlled in some other way. If you decide that an insecticide is necessary, choose the right one and use it wisely. In most instances, cantaloupe insects are kept in check by insect enemies. Insecticides kill these natural enemies. They also kill bees, which are necessary to the pollination of cantaloupes.

Do not apply insecticides as a preventive measure. Apply them only to kill insects that are present, and then only after considering the possible

harmful effects. Check each field regularly. If you see harmful insects, note whether their natural enemies, such as aphid-lions, the larvae and adults of lady beetles, and wasplike parasites, are also present. With the help of these natural enemies it is often possible to produce a crop of cantaloupes without using insecticides.

Use only those insecticides recommended for cantaloupes. Some insecticides, such as toxaphene and sulfur, severely damage cantaloupe plants.



TC-7508

Parasitized aphid (left) and parasitic wasp.

The accompanying table names insecticides that may be used to control cantaloup insects and gives the maximum amount of active ingredient to apply per acre.



TC-7481

Larva of the convergent lady beetle.



TC-7480

Adult of the convergent lady beetle.

Insecticides and rates of application for controlling insects on cantaloups

[See "Precautions," p. 8, for minimum number of days that should elapse between last application and harvest]

Insecticide and formulation ¹	Maximum amount of active ingredient to apply per acre ²
	Pounds
Carbophenothion:	
EC.....	1
D.....	1
Diazinon:	
EC.....	¾
D.....	¾ to 1
Endosulfan:	
EC.....	½
D.....	1
Kelthane:	
EC.....	½
D.....	½ to 1
Malathion:	
EC.....	1¾
D.....	1¾
Methoxychlor, D.....	1¾
Parathion:	
EC.....	½
D.....	½
Mevinphos (Phosdrin):	
EC.....	½
D.....	½
Tetradifon:	
EC.....	½
D.....	1

¹ EC=emulsifiable concentrate. D=dust.
² These are maximum dosages; larger amounts may result in residues that exceed permissible tolerance.

Beet Leafhopper

The beet leafhopper is a sucking insect about 1/8 inch long. It is gray to greenish yellow. Beet leafhoppers breed on weeds such as sowbane, lambs-quarters, and careless weed. Cantaloup plants are not their favorite food, and they do not reproduce on them. They soon leave if there are no weeds in the field. If weeds are present, the leafhoppers will remain in the field and hop back and forth between the weeds and the cantaloup plants.



TC-7493

Beet leafhopper.

The beet leafhopper is the only insect known to transmit curly top, a virus disease that usually kills cantaloup plants in the seedling stage. Plants affected by curly top when they have 2, 3, or 4 leaves may be so stunted that they are worthless, or they may die. Plants affected after the 6-leaf stage may look undamaged; yet the quality and yield of the melons may be reduced. Older plants may show symptoms of curly top at the ends of the runners, such as shortening of the distance between leaves, and inward curling of leaves.

Not all beetle leafhoppers transmit the curly top virus. The percentage of virus carriers may be low or it may be high. Noncarriers can pick up the virus from plants infected by carriers and, in turn, infect healthy plants. A leafhopper infected with the curly top virus remains infective throughout its life.

The leafhoppers that you see in your fields may have come from different places. You cannot judge by their numbers alone how much damage they may do. The amount of damage depends on the number of virus carriers and the potency of the virus strain they carry.

● **Control.**—Clean culture is a “must” in beet leafhopper control. Weed the fields as early as possible. Early weeding protects young plants, which are highly susceptible to curly top. By the time plants have begun to send out runners, they have developed considerable resistance to the disease.

If beet leafhoppers migrate to the fields before you weed, apply parathion and remove the weeds immediately. Blanket the entire field with the dust or spray. Most of the leafhoppers are on weeds or resting on open ground.



TC-7334

Plants infested by curly top when they are in older stages may show symptoms at the ends of runners. One symptom is shortening of distance between leaves.



TC-7333a, TC-7333b

Almost every plant in the field above was affected by curly top; yield was low. Only 6 percent of the plants in the field below were affected by curly top; yield was high.

Leaf Miners

Adult leaf miners are black flies about $\frac{1}{8}$ inch long. They have a yellow spot on the back between the wings. They lay eggs in the leaves. The maggots that hatch from the eggs feed within the leaves, forming irregular tunnels, or mines.

• **Control.**—Insecticides seldom need to be used. Fifteen species of tiny, wasplike parasites attack leaf miners and ordinarily hold them in check. Most of the insecticides that kill leaf miners also kill the beneficial parasites. Some insecticides, such as

DDT, kill the parasites but not the leaf miners, and their use increases the number of leaf miners.

Leaf miners may be controlled with parathion, which penetrates the tunnels and kills the maggots. You may need to repeat the application in 7 to 10 days if injury continues.

Southern Garden and Western Potato Leafhoppers

The southern garden and western potato leafhoppers resemble the beet leafhopper but are smaller, and green. They deposit eggs within the leaves and stems. Young leafhoppers (nymphs) hatch from the eggs and develop on the underside of the leaves.

Feeding of nymphs and adults removes the chlorophyll (green coloring) from leaves—usually the leaves of the older plants. White specks appear. Damage occurs on the lower leaves first. It can be seen only when you separate the outer foliage. If the insects are uncontrolled, most of the leaves will be damaged, the quality of the melons will be lowered, and the melons will be exposed to the sun.

• **Control.**—Apply parathion or malathion. Since these insects usually do not become numerous until 2 or 3 weeks before harvest, one application is usually enough.

Thrips

Several species of thrips, slender insects that are usually less than $\frac{1}{16}$ inch long, infest Southwestern cantaloup fields. Ordinarily they cause only slight damage, but if large numbers of them occur on small plants early in the season they slow down plant growth.

• **Control.**—Apply parathion if thrips become numerous on small plants. Parathion also kills natural enemies of thrips and spider mites.



TC-7335

Cantaloup leaf severely damaged by leaf miners.

Watch carefully for spider mite infestations in treated fields.

Melon Aphid

The melon aphid is a small, soft-bodied, sucking insect found in colonies on the underside of cantaloup leaves. If numerous, the aphids will cause severe leaf curling.

● **Control.**—When aphids first appear, look for their natural enemies—small, wasplike parasites, lady beetles, aphid-lions, and maggots of syrphid flies.

Mummified bodies of aphids adhering to the leaves are a sign of parasites. You probably will not need to apply an insecticide if these natural enemies are present. However, if the number of aphids continues to increase,

one application of diazinon, endosulfan, parathion, mevinphos, or malathion will usually control them.

Cucumber Beetles

Cucumber beetles are about $\frac{1}{4}$ inch long, are yellowish or greenish, and may be striped, banded, or spotted.

The beetles feed on cantaloup leaves and, although rarely a problem in the Southwest, can slow down plant growth if they become numerous.

● **Control.**—If the beetles become numerous, one application of parathion, malathion, or methoxychlor will control them.

If seedlings are being damaged by the beetles as they come through the soil, apply a band of insecticide on the soil along the rows.



TC-7111

Spotted cucumber beetle.

Spider Mites

Spider mites (red spiders) are so small they are hard to see with the naked eye, but their webbing is conspicuous when they become numerous. They injure the foliage by removing the chlorophyll (green coloring) from the leaves. This lowers the quality of the melons; if damage is severe, it will expose the melons, causing sunburn damage.

● **Control.**—Spider mites have several natural enemies that often keep them in check. Do not apply insecticides if you see only a few mites, but make frequent observations.

Apply Kelthane, carbophenothion, or tetradifon before spider mites become so numerous that webs are conspicuous. Watch carefully for other pests in fields treated with parathion. Parathion kills the active stages of spider mites but it does not kill their eggs and does kill their natural enemies. Therefore,

to control spider mites with parathion it is necessary to make two or three applications at weekly intervals. Parathion is useful for a cleanup late in the season.

APPLYING INSECTICIDES

Dusts

You can apply dusts with ground equipment or aircraft. Use at least 15 pounds of dust per acre with ground equipment, and 25 pounds per acre with aircraft. In no instance should the dosage of active ingredient exceed the amounts shown in the table on page 3.

Several kinds of power dusters may be used for ground application. Some are tractor mounted and utilize a power takeoff; others are equipped with an auxiliary motor.

Drive slowly when dusting. The air velocity at the nozzles should be high enough to force the dust throughout the foliage but not so high that it will blow the dust from the leaves. Use a lightweight canvas drag behind the duster to check the drift of the dust.

Don't dust when the wind velocity is more than 5 miles an hour. You can test wind speed by tossing a handful of dust, or by blowing smoke, into the air. Walk downwind with the cloud of dust or smoke. If you can keep up with it at a slow walk, the wind speed is about 2 miles an hour. If you have to walk fast, the wind is blowing about 4 miles an hour. If you have to run to keep up with the drifting dust or smoke, the wind velocity is about 10 miles an hour.

Sprays

Emulsions prepared from emulsifiable concentrates are recommended for sprays. The dosages should not exceed those shown in the table on page 3. Sufficient spray should be used to provide good distribution throughout the

foliage. The amount of water required will depend on the equipment used. If the spray is applied with one of the low-gallonage sprayers commonly used in the Southwest, 10 to 25 gallons of water is probably sufficient. With high-gallonage sprayers 75 to 100 gallons may be required. With aircraft sprayers 4 to 6 gallons is sufficient.

PRECAUTIONS

Most insecticides are poisonous to people and to animals. Handle insecticides with care. Store them in closed, plainly labeled containers. Put them out of the reach of children and animals.

Follow all directions and heed all precautions given on the labels.

When handling insecticides, avoid repeated or prolonged contact with the skin and inhalation of dusts, sprays, and vapors. After handling insecticides, wash hands and face before eating or smoking.

Kelthane, malathion, methoxychlor, and tetradifon can be used safely without special protective clothing or devices, provided they are in dilute dusts or water sprays. However, most concentrates require special precautions. Avoid spilling them on the skin and keep them out of the eyes, nose, and mouth. If you spill a concentrate on your skin or clothing, wash it off and change clothing immediately. If it gets in your eyes, rinse with plenty of water for 15 minutes and get medical attention.

Diazinon and endosulfan can be absorbed through the skin in harmful quantities. When working with these insecticides, take the same precautions as with concentrates.

Parathion and mevinphos are extremely poisonous and may cause death if swallowed, inhaled, or absorbed through the skin. Carbophenothion is highly toxic if inhaled or swallowed. These highly toxic insecticides should be applied only by a person thoroughly familiar with their hazards and who will assume full responsibility for safe use and comply with all precautions on the labels.

After applying one of the following insecticides, wait the indicated number of days before harvesting: Endosulfan, malathion, methoxychlor, Phosdrin, and tetradifon, 1 day; Kelthane, 2 days; diazinon, 3 days; carbophenothion, 5 days; parathion, 7 days.

To protect sources of water supply, fish, and wildlife, be careful not to contaminate streams, lakes, or ponds with insecticides. Do not clean spraying equipment or dump excess spray material near such water. Avoid contaminating pasture grass, forage crops, or feed by drift of sprays or dusts.

Honey bees and wild bee pollinators are absolutely necessary for a melon set. Dust or spray at night to avoid poisoning bees. Do not apply insecticides if apiaries are close enough to be affected. Notify the beekeeper so that he can move the hives if necessary. Do not apply insecticide dust when wind conditions are such that the insecticide will drift to apiaries or to blossoming plants being visited by bees.

Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture.

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